



Volunteer Lake Assessment Program Individual Lake Reports

ROBINSON POND, HUDSON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	832	Max. Depth (m):	9	Flushing Rate (yr ⁻¹)	1.3
Surface Area (Ac.):	88	Mean Depth (m):	3.3	P Retention Coef:	0.68
Shore Length (m):	2,900	Volume (m ³):	1,189,000	Elevation (ft):	211

TROPHIC CLASSIFICATION

Year	Trophic class
1979	EUTROPHIC
1988	MESOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil
Fanwort

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

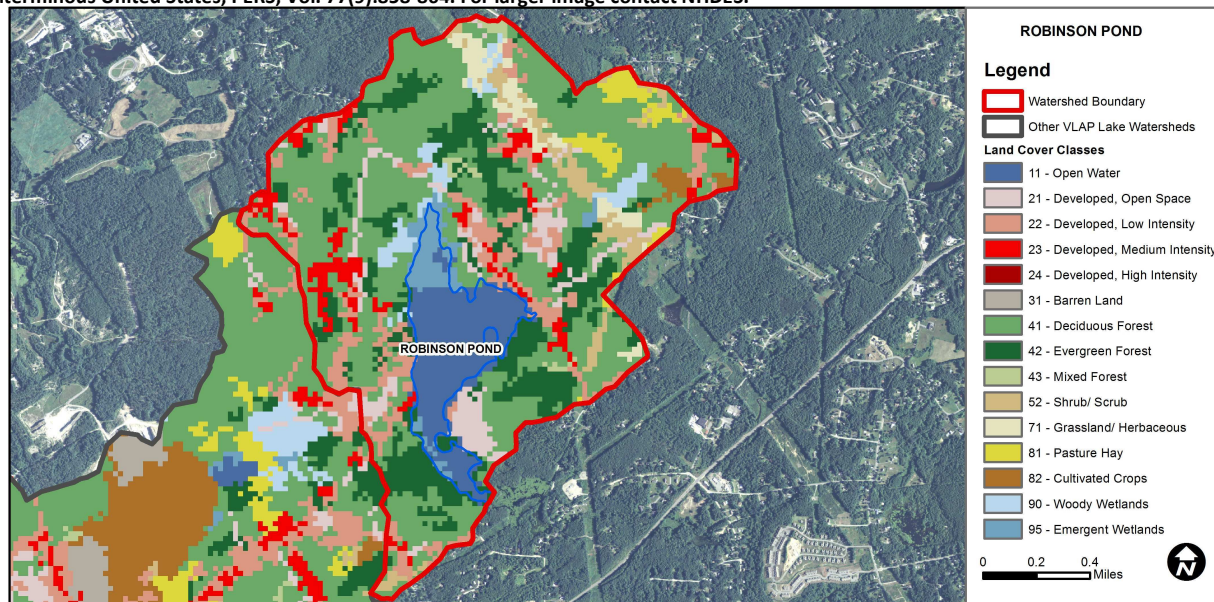
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

ROBINSON POND - CAMP WINAHUPE BEACH	E. coli	No Data	No Data for this parameter.
ROBINSON POND - TOWN BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
ROBINSON POND - TOWN BEACH	Cyanobacteria	Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	8.96	Barren Land	0	Grassland/Herbaceous	2.54
Developed-Open Space	5.36	Deciduous Forest	41.72	Pasture Hay	2.24
Developed-Low Intensity	9.13	Evergreen Forest	15.64	Cultivated Crops	0.88
Developed-Medium Intensity	4.33	Mixed Forest	0.64	Woody Wetlands	2.29
Developed-High Intensity	0	Shrub-Scrub	3.66	Emergent Wetlands	2.63



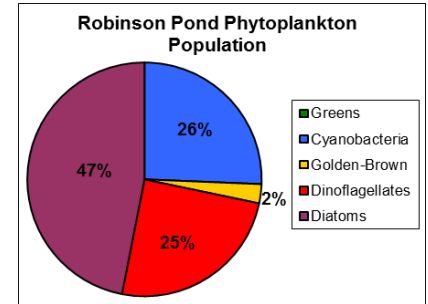
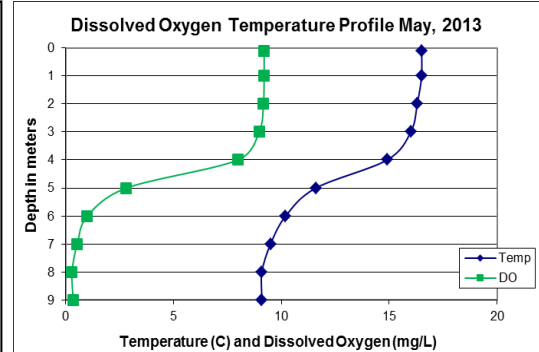
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

ROBINSON POND, HUDSON, NH

2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ♣ **CHLOROPHYLL-A:** Chlorophyll levels were elevated particularly in July and August when levels exceeded 15.0 ug/L and indicated an algal bloom was occurring. Historical trend analysis indicates relatively stable chlorophyll with moderate variability between years.
- ♣ **CONDUCTIVITY/CHLORIDE:** Conductivity and chloride were elevated at all stations, particularly Sta. 7 Row and Sta. 6 Woodcrest Brook.
- ♣ **E. COLI:** July E. coli levels were elevated at Sta. 2 Launch Brook and Sta. 5 Stoney Lane Drainage following significant storm event prior to sampling and stormwater runoff likely contributed to elevated levels. E. coli levels were less than the state standard for surface waters at all other stations.
- ♣ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were slightly above average and greater in July and September when turbidity was higher. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years. Metalimnetic phosphorus was elevated in July and August during the algal bloom and cyanobacteria were visible in the August sample. Hypolimnetic phosphorus increased as the summer progressed due to internal phosphorus loading from bottom sediments. Sta. 5 Stoney Lane Drainage had elevated phosphorus levels in July and August. Samples were a dark brown/orange color and iron bacteria precipitate was noted in the August sample. Phosphorus levels were elevated at Sta. 6 Woodcrest Brook on each sampling event and the samples were also highly rust colored and turbid in July and August. This indicates that these stations are high in mineral and organic content which could contribute to the elevated phosphorus and conductivity. Sta. 7 Row phosphorus was elevated in July during low flow conditions.
- ♣ **TRANSPARENCY:** Transparency was good in May and June, decreased in July due to the algal bloom and time collected, improved in August because the cyanobacteria migrated to the metalimnion, and decreased again in September. Historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- ♣ **TURBIDITY:** Epilimnetic turbidity was slightly elevated in July and September potentially due to algae or stormwater runoff from significant storm events. Metalimnetic turbidity was elevated in August and September due to a layer of cyanobacteria. Hypolimnetic turbidity was elevated July through September due to the release of organic compounds from bottom sediments under anoxic conditions. Turbidity was elevated in Sta. 5, 6 and 7 in July and/or August due to organic matter and high mineral content.
- ♣ **PH:** Metalimnetic and Hypolimnetic pH levels were less than desirable range on several sampling events.
- ♣ **RECOMMENDED ACTIONS:** The increased frequency and intensity of storm events highlights the importance of managing stormwater runoff, particularly in the Sta. 5, 6 and 7 sub-watersheds. It is recommended to perform a watershed survey to identify culverts, storm drains, areas of erosion and other potential pollutant loads, and then prioritize areas to implement stormwater best management practices. Consider contacting a Certified Stormwater Storm Water Quality Professional to evaluate the watershed. To reduce conductivity and chloride levels, encourage local road agents and winter maintenance companies to obtain a Voluntary NH Salt Applicator license through the UNH Technology Transfer Center's Green SnowPro Certification. Keep up the great work!



NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2013 Average Water Quality Data for ROBINSON POND									
	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.	Turb.	pH	
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	m	ntu		
							NVS	VS		
Epilimnion	15.1	12.6	34	175.7		17	2.43	3.25	1.32	6.99
Metalimnion				182.4		38			5.22	6.56
Hypolimnion				202.2		110			14.1	6.47
Sta 2 Launch Brook			40	225.9	170	25			0.87	7.03
Sta 3 Howard Brook			14	90.7	45	19			0.59	6.20
Sta 4 Juniper Brook			35	216.4	16	17			0.28	6.45
Sta 5 Stoney Lane Drainage			29	188.5	85	60			15.75	6.55
Sta 6 Woodcrest Brook			67	315.0	67	120			13.64	6.35
Sta 7 Row			73	349.7	47	82			16.09	6.39

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
Conductivity	Stable	Trend not significant; data moderately variable.	Transparency	Degrading	Data significantly decreasing.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

